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E-Learning to Improve Intercultural Communication

Alanah Mitchell
John A. Walker College of Business Appalachian State University, alanah.mitchell@drake.edu

Charlie Chen
John A. Walker College of Business Appalachian State University, chench@appstate.edu

B. Dawn Medlin
John A. Walker College of Business Appalachian State University, medlinbd@appstate.edu

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Alanah Mitchell
John A. Walker College of Business
Appalachian State University
mitchellaj@appstate.edu

Charlie Chen
John A. Walker College of Business
Appalachian State University
chench@appstate.edu

B. Dawn Medlin
John A. Walker College of Business
Appalachian State University
medlinbd@appstate.edu

ABSTRACT

Electronic learning, or e-learning, is becoming an increasingly common way to educate and train individuals. However, along with the benefits of e-learning there are some challenges. This study investigates the use of VoIP technology, as an e-learning system, for U.S. and Taiwanese students to improve their intercultural communication competency. The subjects worked together one-on-one using Skype to communicate. The findings from this experience suggest that VoIP technology provides a good fit for one-on-one e-learning in addressing an intercultural communication task. Students were able to successfully teach and learn from one another, regarding more than just the language.

Keywords

E-learning, virtual collaboration, collaborative learning, virtual learning teams, intercultural communication, task-technology fit, Skype.

INTRODUCTION

Electronic learning, or e-learning, systems allow for education and training to be delivered electronically, through the use of information and communication technologies (Chen, Wu, & Yang, 2006). E-learning is becoming increasingly popular for academic institutions as well as organizations because the process provides consistent education and reduces time, information overload, and expenses, as well as increases learner convenience and improves tracking (Welsh, Wanberg, Brown, & Simmering, 2003). The use of electronic learning systems not only allows for the education and training of students, but the process of learning through an e-learning system also provides students with the skills necessary to work in a virtual environment. Increasingly, practitioners are experiencing what it means to work within a virtual team and e-learning systems are an option for preparing practitioners for this experience (Davis & Zigurs, 2008; Robey, Khoo, & Powers, 2000). Despite these benefits, there are some drawbacks in relation to upfront system costs and the lack of learner interaction (Welsh, et al., 2003). An e-learning system which relies strictly on voice-over-internet protocol (VoIP) technology offers a way to address these drawbacks due to its accessibility and interaction capabilities.

This study investigates the use of a Skype, as a synchronous e-learning system, which uses VoIP technology, in order to understand how such a system can foster an innovative learning environment for the teaching and learning of a simple task. U.S. and Taiwanese students work together online, through a synchronous audio and video system, to improve intercultural communication competency. The purpose of this study is to gain an understanding of the e-learning process and whether or not VoIP technology can be useful for this type of teaching and learning.

The following section presents the theoretical foundation for this research, including background on e-learning, task technology fit, and intercultural communication. The subsequent sections present the methodology and research findings and discussion. The final section presents our research conclusions and provides some ideas for future research.

THEORETICAL FOUNDATION

E-Learning

An extensive body of research exists in the area of teaching in online environments (e.g., Alavi, 1994; Hiltz, 1997; Leidner & Jarvenpaa, 1995; Shen, Hiltz, & Bieber, 2006; Sloffer, Dueber, & Duffy, 1999). E-learning is one example of this form of teaching. By definition, e-learning is the use of information and communication technologies over the Internet to deliver

information and instruction to individuals (Welsh, et al., 2003). E-learning systems increase the ability to collaborate asynchronously or synchronously by relying on technology features that allow for video conferencing and collaboratively accessing web applications and information repositories (Chen, et al., 2006; Welsh, et al., 2003).

Common, asynchronous learning environments include Blackboard (e.g., O'Dwyer, Carey, & Kleiman, 2007) and WebCT (e.g. Shen, et al., 2006). However, a simple asynchronous e-learning example might only include PowerPoint slides posted to a website (Welsh, et al., 2003).

As an alternative to an asynchronous learning environment, synchronous e-learning environments might involve the use of WebEx, GoToMeeting, or another electronic meeting system. With this type of set-up, learners from different locations log in, as an instructor facilitates a discussion with the use of slides and/or a whiteboard (Welsh, et al., 2003). There have been numerous studies on the use of electronic meeting systems and groupware to support group processes and enhance learning (Fjermestad & Hiltz, 2000/2001); therefore with this study we are focusing on the most basic type of synchronous e-learning; VoIP. VoIP technology, specifically an online synchronous audio and video system provides the most basic type of real time audio or video conferencing necessary for e-learning. VoIP technology enables one-to-one, one-to-many, or many-to-many interactions between people who are geographically dispersed. Previous research of electronic group work has found that the use of Skype, or any other VoIP technology, is a useful way to establish learning (Davis, Germonprez, Petter, Drum, & Kolstad, 2009).

As suggested above, e-learning is becoming increasingly popular for academic institutions as well as organizations due to the consistent education and time, information overload, and expense reduction, as well as learner convenience and tracking (Welsh, et al., 2003). Furthermore, the use of electronic learning systems not only allows for the education and training of students, but it also prepares practitioners to work in a virtual team, a skill that is growing in necessity (Davis & Zigurs, 2008; Robey, et al., 2000). With this research, we also explore this factor.

Task Technology Fit

The theory of task-technology fit (TTF) suggest that technology is more likely to have a positive impact on performance and is more likely to be used if the technology capabilities match the user's task (Goodhue & Thompson, 1995; Zigurs & Buckland, 1998). The basic premise of TTF suggests that user perceptions of task-technology fit are impacted by the task and the technology characteristics (Goodhue & Thompson, 1995). Additionally, the theory suggests that TTF impacts performance and is mediated by utilization.

A group level analysis of TTF suggests that group performance is impacted by the fit profile between the task and a group technology (Zigurs & Buckland, 1998). In this theory of TTF, tasks are characterized as simple, problem, decision, judgment, or fuzzy, while technologies are characterized according to the degree of support for communication, process structuring, and information processing (Zigurs & Buckland, 1998; Zigurs, Buckland, Connolly, & Wilson, 1999). Each task type is then associated with a technology which best fits the task. For example, simple tasks are associated with a single outcome and are best fit with a technology that offers high communication support, low process structuring, and low information processing so that team members can easily communicate their ideas. For problem and decision tasks technology should allow for low communication support, low process structuring, and high information processing. Finally, for fuzzy tasks, high communication support, medium process structuring, and high information processing is necessary from the team technology.

In this research, we are looking at a VoIP system (i.e., Skype) which offers high communication support, low process structuring, and low information processing. According to TTF, this means the technology is best suited for a simple task. Therefore, with this research, it is critical that a simple task is chosen.

Intercultural Communication

As mentioned above, the use of electronic learning systems not only allows for the education and training of students, but it also prepares practitioners to work in a virtual team, a skill that is growing in necessity (Davis & Zigurs, 2008; Robey, et al., 2000). Virtual teams are comprised of individuals who work in different geographic locations, time zones, organizations, and/or cultures (Dubé & Paré, 2004; Lipnack & Stamps, 1997). As a part of this collaboration team members are often faced with intercultural communication challenges (Avison & Banks, 2008; Cramton, 2002). Therefore, a simple task which addresses improving students' intercultural communication competency is an area which needs attention which fits with our VoIP technology selection. In fact, VoIP has become the choice technology for people who are interested in improving their intercultural communication competence (Scott, 2008). VoIP technology adds realism and life to intercultural interactions without geographical limitations. This excites and motivates students during the learning process (Scott, 2008). With VoIP,

real-time conversation exchange can directly and indirectly develop second-language speaking abilities by allowing native speakers to provide immediate phonetic feedback and authentic interactions to the learners (Payne & Whitney, 2002). Based on this background a simple task related to intercultural communication competency would best suit our technology choice as well as our students' needs.

METHODOLOGY

Research Design

The goal of this study is to investigate the use of VoIP technology, as an e-learning system. U.S. and Taiwanese students were brought together to work one-on-one in order to increase their intercultural communication competency. Approximately 60 students from Taiwan and 100 students from the U.S. were invited to participate in this study. The students from Taiwan were interested in learning English, while the students from the U.S. were undergraduates taking an introductory MIS course. All of the students were required to use English to communicate with each other.

Following their initial conversations, a post-survey was given to the students using SurveyMonkey. In this study, we relied on a survey research design including both quantitative and qualitative questions. (The survey questions can be found in Appendix A.) We chose this approach due to the convenience it offers in collecting the perspectives of the students. Our main purpose was to gain an understanding of the e-learning process and whether or not VoIP technology can be useful for this type of teaching and learning. The qualitative data was analyzed using open coding techniques from grounded theory research (Strauss & Corbin, 1998). This type of coding relies on the process of naming and categorizing phenomena in order to conceptualizing the students' survey responses (Strauss & Corbin, 1998).

Technology

Our chosen technology for one-on-one communication between the students was Skype. Skype is a synchronous VoIP technology. Students were allowed to use the text, audio, and video features of the technology. The U.S. students met in a computer lab to initiate their communication. The students were also provided with headphones and webcams (see Figure 1).

Figure 1. Picture of U.S. Student Working with Student from Taiwan

Task

Based on the task types used in task-technology fit theory, the task for this research was a simple task in which students were to teach and learn the English language (Zigurs & Buckland, 1998). Prior to the student sessions, a list of cultural topics was created for all of the students. The goal of this list was to give the students something to think about discussing. The U.S. students collaborated using GoogleDocuments in order to brainstorm and come up with content and questions for discussion. Overall, 41 topics were identified in the areas of personal experience (e.g., places, people, culture, food, and hobbies), personal preference (e.g., cars, vacations, cash or gift, and indoors or outdoors), personal opinions (e.g., chores, beauty, decisions, and zoos), and personal comparisons (e.g., summer jobs, travel, language, news, and food). The final list was posted online for all of the students (in the U.S. and Taiwan) to review prior to the sessions. The U.S. students then used the following instructions to complete the one-hour sessions:

1. Log into Skype with your assigned username and password;
2. Add the corresponding Taiwanese student's Skype username as a new contact;
3. Wait for the Taiwanese student to accept your invitation;
4. Start discussing with each other according to the handout/website;
5. Wrap up your discussion; and
6. Fill out a post-test survey.

Each session lasted for 50 minutes, with ten minutes at the end of the hour to complete the post-survey. There were many sessions held, with approximately 30 students from the U.S. and 30 from Taiwan in each session. This means that even though there were fewer students from Taiwan overall, the pairings were equal for the sessions and some Taiwan students participated more than once. Students only completed the survey after their first session. Table 1 shows a couple of sample questions and answers that took place during the sessions.

Question: Who is the person who has influenced your life the most? **Answer**: The person who has most influenced my life is my mother. She raised two girls on her own for 15 years and also battled cancer for 3 of those 15 years. She is a very strong and admirable woman who keeps a positive outlook on life. I can only hope to one day possess the courage and grace which she displays on a daily basis.
Question: Who is the biggest role model in your life? Explain how he/she has helped you to become the person you are today. Is this person related to you? Do you have a role-model that is famous? How did they become your role model? How long have you known this person? **Answer**: In my family, my mother has influenced me greatly because she has so many good qualities. She is very well educated and keeps an open mind. Her thinking is very modern. She is able to understand people from different generations. In addition, she is a good listener. This makes her tolerant of other people's opinions. Her personal values set a good example for me to follow in my own life. The way she treats people and thinks makes me want to become the best person I can be. This is why I think my mother has influenced me the most in my life.

Table 1. Sample Questions and Answers from the One-on-One Sessions

FINDINGS AND DISCUSSION

The following sections describe the analysis and results of the data that was collected using the approach explained in the previous section. We begin by presenting the findings from the questionnaire in relation to demographics.

As Table 2 shows, the subjects in this study were student age and only half of them had used Skype prior to this experience. Of those that had used Skype they either had very little experience (i.e., less than six months) or significant experience (i.e., one to two years).

Demographic Variable	N	Frequency: U.S.	N	Frequency: Taiwan
Age	84	18-20 (14.3%) 20-22 (71.4%) 22-25 (10.7%) 25-30 (2.4%) 30-40 (1.2%)	25	18-20 (92.0%) 20-22 (8.0%)
First time using Skype	84	Yes (53.5%) No (46.4%)	25	Yes (52.0%) No (48.0%)
Of those experienced, length of experience	39	0-6 months (33.3%) 6 months (15.4%) 1-2 years (35.9%) 2+ years (15.4%)	12	0-6 months (33.3%) 6 months (25.0%) 1-2 years (33.3%) 2+ years (8.3%)

Table 2. Profile of Study Participants

The remainder of this section focuses on the students' perceptions of Skype as an e-learning tool for teaching and learning intercultural communication, their relationship development, the role of the technology in this learning process, and the overall experience findings.

Teaching and Learning

Our primary goal of this research was to investigate whether or not Skype could be a useful e-learning system to foster an innovative learning environment for the teaching and learning of a language (i.e., English) in order to improve intercultural communications. At the end of the sessions, 78.6% of the U.S. students and 88.0% of the Taiwanese students found that Skype was indeed a useful way to teach (from the U.S. perspective) and learn (from the Taiwanese perspective) another language (see Table 3).

Demographic Variable	N	Frequency: U.S.	N	Frequency: Taiwan
Usefulness	84	Yes (78.6%) No (21.4%)	25	Yes (88.0%) No (12.0%)
Successfulness	84	Yes (42.9%) No (57.1%)	25	Yes (84.0%) No (16.0%)
More sessions required to be successful	84	None, they can hold a conversation now (50.0%) Less than 5 (20.2%) 5-10 (16.7%) 10-20 (7.1%) 20+ (6.0%)	25	None, I can hold a conversation now (12.0%) Less than 5 (36.0%) 5-10 (44.0%) 10-20 (8.0%) 20+ (0.0%)

Table 3. Usefulness and Successfulness of Sessions with Regard to Teaching and Learning

The positive comments from the students suggested that the ability to practice other languages was the greatest benefit from using Skype. For example, one U.S. student made the following comment: "*It helps non-English students hear how the language is spoken and words that are typically used. Sometimes when learning a different language its hard to know which words to use in certain situations and hearing a native person speak is very helpful. Gives practice that is also fun*." Another student commented that Skype was an excellent tool because of the accessibility: "*It is cheap and allows communication across great distances*." Despite the positive comments there were nine student comments that were concerned with the technology and potential issues that might occur: "*I think it could be a very good way to teach a language. However, if someone were to have a problem with their microphone then it could be a small problem but other than that I think that this could be a good way. That is because you can interact and learn from someone online and you do not actually have to be near that person*."

When asked if they were successful in teaching and learning, only 42.9% of the U.S. students thought that they did a good job teaching the person that they worked with. This is an interesting point, considering that 84.0% of the Taiwanese students felt that they were successful in learning during the session. In fact, 50.0% of the U.S. students felt like they didn't need to hold any more sessions to teach their partners because they felt that the Taiwanese students were able to easily hold a conversation in English. One student commented: "*The students I talked to were pretty fluent in english, but both seemed to doubt themselves when it came to speaking English. I think more interaction would boost their confidence and give them good experience. Learning a language from a book is very different than talking to someone with a genuine accent or dialect*."

Despite the U.S. students' confidence in the Taiwan students, only 12.0% of the Taiwanese students felt that they were able to hold a conversation. Many of them made comments like: "*my english is so poor.*" Along with the English teaching and learning, there was also teaching about different slang terms. One U.S. student commented: "*I said a few words that he was not sure what they mean so I had to explain to him what they were. Such as the NFL, he knew about American Football but he really did not know what the NFL was or what it stood for*." Additionally, three U.S. students commented that they learned something themselves. For example: "*I learned how to say Hi and how are you in Taiwanese (Niho and niho ma)*." Overall, the students attributed the usefulness and success of teaching and learning in Skype to 1) the ability to practice the new language, 2) the ability to see the person you are talking to, and 3) the accessibility of the technology. Any concerns of the process were related to 1) technical concerns or 2) communication challenges and misunderstandings.

Relationship Development

As we mentioned in the previous section, the students learned more than just English. When asked whether they found the use of Skype to be a good way to get to know individuals, the result was almost unanimous among both groups of students (see Table 4).

Demographic Variable	N	Frequency: U.S.	N	Frequency: Taiwan
Usefulness	84	Yes (100.0%) No (0.0%)	25	Yes (96.0%) No (4.0%)

Table 4. Usefulness of Sessions in Terms of Relationships

Fifteen students commented on how easy the process was and how easy it was to talk to people from a different culture through Skype: "*I think it is an easy way to be able to interact with people that are thousands of miles away. You can talk to just about anyone, anywhere. Even if the language barrier is there to an extent you can still learn a lot of information about that person*."

Many of the topics discussed were related to hobbies, travel, food, family, and school or job related factors. This makes sense considering the pre-task list of topics that each student had to review. Pop culture topics were discussed which showed some of the students that their cultures are not that much different. For example, one U.S. girl mentioned that the girl she talked to was much like her: "*She likes the movie Twighlight and thinks the actor Robert Pattinson is hot. She enjoys swimming for fun. She drives a motorcycle 100cc for transportation. She also likes american food, mostly fast food*." In fact, many of the students found that they were very similar: "*They are more similar to me than I thought. They do the same things I do and like the same things*."

There were also comments from students who discussed aspects that differ between the cultures. For example, one U.S. student commented: "*In this study you are kind of forced to dicuss issues, though I was nervous at the beggining it was very interesting to learn about a different culture*." Whether they found similarities or differences it is interesting to note that such a high percentage of the students were able to foster an innovative learning environment for not only the teaching and learning of a language, but relationship development as well.

Role of Information Technology

As Table 5 shows, the students relied more on the video feature of Skype than the texting feature. After the session, a few students mentioned that they were unaware that texting was an option: "*I didn't know that we had the ability to use text chat, I think that would have helped immensely*." Those who didn't use texting they did think that it would have been more helpful: "*Some times it was hard to understand what he was saying so it would have been easier if he were to just type those words*."

Demographic Variable	N	Frequency: U.S.	N	Frequency: Taiwan
Used	84	Text (26.2%) Video (96.4%)	25	Text (32.0%) Video (72.0%)

Table 5. Technology Capabilities Used

Other students commented that they used every feature they could, and would have preferred more features outside of Skype. For example: "*Being able to quickly reference internet and pull up pictures, maps and other useful things to make the conversation more productive. Easier to show examples than to just talk about things*." Due to the fact that all of the communication took place through the use of technology, IT did play a critical role in both the teaching and learning and the relationship development among the students.

Overall Experience Findings

For the most part the students were very happy with the experience. In fact, all of the students were able to identify a positive aspect of the experience, whether it was related to the use of Skype, the chance to meet and talk with someone from so far away who has a different culture, or the chance to make a new friend. One student commented: "*The most positive aspect of the experience was just knowing that I was talking to someone thousands of miles away in a completely different time zone and I was able to understand him and see him as if he were just a few feet away*." A couple students also commented on the learning/teaching aspect of the experience and how they were most excited to have helped someone out. For example, one student mentioned that they were most happy about: "*Encouraging the person to be confident about learning English.*"

When asked what the negative aspects of the experience were, 26 students commented on the language barrier or accent issues causing communication challenges, 21 students commented that they had trouble hearing due to the background noise (with everyone talking in the computer lab at the same time), 20 students said there was nothing negative about the experience as it was mostly positive, and six students commented on technical challenges that occurred such as microphones or webcams not working correctly. Despite these negative comments, the overwhelming feeling regarding the experience was a positive one.

CONCLUSION

Our overall goal was to investigate whether or not Skype could be a useful e-learning system to foster an innovative learning environment for the teaching and learning of a language in order to improve intercultural communications. Our findings show that students are able to use the technology and its capabilities to achieve the learning goals. Overall, the students attributed the usefulness and success of teaching and learning in Skype to the ability to practice, the ability to see the person you are talking to, and the accessibility of the technology. Any concerns of the process were related to technical concerns or communication challenges and misunderstandings. Whether the students found cultural similarities or differences they overwhelming were able to foster an innovative learning environment for not only the teaching and learning of a language, but relationship development as well.

In term of contributions, our findings suggest that VoIP technology provides a good fit for one-on-one e-learning in addressing an intercultural communication task. Educators can use this technology to provide students with a similar experience to prepare them for their likely future work as a virtual team member (Davis & Zigurs, 2008; Robey, et al., 2000). Additionally, organizations can use this process to prepare their employees to face intercultural communication competency challenges when working in virtual teams or managing offshore projects (Avison, 2008). Recent research recommends using both asynchronous and synchronous e-learning systems for teaching and learning (Ferratt & Hall, 2009). Therefore, future research should consider exploring this possibility with a different technology, or combining Skype with an asynchronous e-learning system to address teaching and learning to improve intercultural communication. Addressing the technology concerns that we uncovered would be another future research consideration.

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APPENDIX A

1. Do you think that Skype is a useful way to teach another language (in this case English)? Why or why not?
2. Do you think that you were able to successfully teach another language to the person you worked with today? Why or why not?
3. How many more sessions would you need till the person you worked with was able to easily hold a conversation in English?
    a. None, They Can Hold A Conversation Now/Less Than 5/5-10/10-20/20+
4. Do you think that Skype is a useful way to get to know individuals? Why or why not?
5. What are some of the things that you learned about the individuals you talked with on Skype?
6. What technology capabilities did you use to teach these individuals?
    a. Text Chat/Video Chat/Other (Specify)
7. What technology capabilities did you not use that you think would have been helpful to have access to?
    a. Text Chat/Video Chat/Other (Specify)
8. Describe the experience that you just had. What did you talk about, what was your method or process for teaching another language, etc? Be detailed.
9. Describe the most positive aspects of the experience you just had?
10. Describe the most negative aspects of the experience you just had?
11. Is this your first time using Skype? If not, how long have you been experienced with Skype?
    a. 0-6 Months/6 Months-1 Year/1-2 Years/2+ Years